APPENDIX A

AIR MONITORING INSTRUMENT CALIBRATION & MAINTENANCE

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A.1 PHOTOIONIZATION DETECTOR (10.2 eV)

The guideline for operational check, operation, and maintenance of Photoionization Detector (PID) is outlined below. Operational checks will be performed daily in accordance with the manufacture's instructions. The manufacturer's operation manual should be consulted for detailed instructions concerning the operation of various makes and models of photoionization meters.

A.1.1 Operational Check

1. Check to see that the batteries are sufficiently charged.
2. Confirm that the instrument is in the survey mode or read mode
3. Confirm that the previously entered standard gas value is consistent with the current gas value. Make adjustments as required.
4. Connect the standard calibrations gas bottle.
5. Turn the calibration gas cylinder on.
6. The reading should be close to the actual gas concentration. If not wait a few seconds and then repeat this process until the calibration gas has stabilized to 1-2 ppm with the calibration gas range.
7. Exit the calibration mode, turn off the gas and disconnect the calibration gas cylinder from instrument.

The calibration gas typically used for calibration is isobutylene at a concentration of 100 ppm. The use of this calibration gas will result in a reading of 100 ppm in the calibration mode.

A.1.2 Operations

1. Turn the instrument on.
2. Place sensor near the sample or location to be measured.
3. After the necessary measurements have been observed and recorded, turn the instrument off.

A.1.3 Preventive Maintenance

After daily use of the photoionization meter for field investigations, the unit shall be inspected and cleaned as necessary. The battery should be recharged daily (if needed) while in continuous use.

A.2 EBERLINE HP-260

The procedure for operation and maintenance of the Eberline HP-260 is outlined below. The operation manual supplied by the manufacturer should be consulted for instructions concerning the operation of various makes and models.

A.2.1 Operational Check

Background determination and instrument performance as described in this procedure shall be performed prior to the first use of the instrument each day or if sporadic readings occur. Prior to entering a radiological survey area, the instrument should be determined to be fully functional. The calibration controls shall not be adjusted in the field. An operational check shall be performed in the following manner:

1. Visually check the instrument for signs of physical damage and check the calibration status of the instrument.
2. Turn the instrument on.
3. Test the batteries to ensure that the instrument is functional by turning the dial to the "BATT" portion of the scale. The meter should deflect to the battery check portion of the meter scale.
4. Replace the batteries if they are dead and recheck.
5. Press the speaker button to the "ON" position.
6. Set the dial for the appropriate scale.
7. Use the designated beta source identified on the label located on the side of the instrument to determine if the instrument is functioning. Handle the check source by the outer rim only.
8. Place the source in contact with the middle portion of the detector probe.
9. Verify that the reading obtained corresponds to the beta source concentration.
10. If the reading is not within 20% refer to owner's manual for further action.

A.2.2 Procedure

1. Determine that the instrument is operational using the procedure listed above.
2. Perform the survey holding the instrument 0.5 inches from the surface to be measured.
3. Note and record reading.

A.2.3 Preventive Maintenance

The instrument will be checked daily for signs of physical damage. Calibration adjustments of the instrument shall be performed in a controlled environment by certified personnel.